Ministry of Higher Education and Scientific Research - Iraq

University

جامعة المستقبل / الكلية التقنية الهندسية / هندسة تقنيات الذكاء الاصطناعي

First Cycle – Bachelor's Degree (B.Eng.)

Al-Mustaqbal University, College of Engineering Technology

Artificial Intelligence Engineering Technologies

بكالوريوس هندسة تقنيات الذكاء الاصطناعي (الدورة الأولى)

جامعة المستقبل/ الكلية التقنية الهندسية

هندسة تقنيات الذكاء الاصطناعي

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Overview of the Department of Artificial Intelligence Engineering Technology – Al-Mustaqbal University

The Department of Artificial Intelligence Engineering Technology is one of the newest and most innovative departments at Al-Mustaqbal University. It aims to prepare engineers capable of keeping pace with the digital revolution and its wide range of applications. The department integrates engineering principles with programming, data analysis, image processing, robotics, and deep learning to graduate students equipped with advanced technical skills that meet the needs of both local and global job markets.

1 - Vision

To achieve leadership in preparing specialized artificial intelligence engineers who are capable of innovation and developing sustainable technological solutions that contribute to building an advanced digital society.

To provide high-quality engineering education based on modern curricula, scientific research, and practical training, enabling students to acquire the skills needed to develop intelligent systems while supporting community service and contributing to industrial and technological sectors.

2- Mission

To provide high-quality engineering education based on modern curricula, scientific research, and practical training, enabling students to acquire the skills needed to develop intelligent systems while supporting community service and contributing to industrial and technological sectors.

3- Program Goals

1. To prepare engineers with a strong scientific foundation in algorithms, programming, and data processing, enabling them to develop innovative intelligent solutions.
2. To enable students to build practical AI systems, including machine learning, computer vision, robotics, and big data analytics.
3. To develop analytical thinking and engineering design skills to solve complex technical problems using advanced tools and environments.
4. To enhance communication skills, teamwork, and professional and ethical responsibility in applying artificial intelligence technologies.
5. To qualify graduates for the job market and support entrepreneurial projects by connecting academic learning with modern industrial and research applications

4- Learning outcomes, teaching, learning and assessment methods:

A - Knowledge and Understanding

- Ability to apply knowledge in expert systems, machine learning, deep learning, and neural networks.
- Understanding professional and ethical responsibilities in the field of specialization.
- Ability to evaluate course outcomes with faculty members, industrial practitioners, professionals, employers, and graduates for improvement.
- Teaching leadership skills, commitment, ethical behavior, and respect for others.

B - Subject-Specific Skills

- Ability to work and integrate into multidisciplinary teams in artificial intelligence and smart software fields.
- Ability to design and conduct experiments and to write and implement machine learning algorithms.
- Ability to analyze complex problems and decompose them into solvable components using AI techniques.
- Ability to critically evaluate algorithms and models to determine effectiveness and accuracy.
- Ability to plan, execute, and manage AI projects from inception to completion.

C - Thinking Skills

- Ability to effectively communicate with stakeholders in security, military, civil, and administrative fields.
- Active engagement in lifelong learning and career development.
- Awareness of contemporary issues in the field of specialization.
- Broad learning necessary to understand the global impact of engineering solutions on business, military, security, social, and administrative problems.

D - General and Transferable Skills (Other Skills Related to Employability and Personal Development)

- Ability to analyze and evaluate components and systems in relation to intelligent systems, with readiness and willingness for continuous learning to keep pace with rapid advancements in AI.
- Proficiency in using the latest software to diagnose problems and develop innovative and effective solutions.
- Ability to effectively adapt to multidisciplinary teams, present technical ideas and concepts clearly to non-specialist audiences, and handle pressure while working efficiently in dynamic environments.
  Ability to plan, execute, and manage projects from start to finish.
- Ability to develop and conduct appropriate experiments, analyze and interpret data, and use engineering judgment to draw conclusions.

5- Students Learning Outcomes.

Graduates obtain information on the technical aspects of communications and utilize basic knowledge toward realizing broader concepts. The Department offers a Bachelor of Science in Artificial Intelligence engineering. Additionally, the Department offers courses to a large number of students from other departments and supports preprofessional programs. The Artificial Intelligence engineering curriculum and experiences are designed to prepare students, in part, for entry into professional programs, graduate studies, technical careers and education

Outcome 1

Understand and develop systems

Graduates will be able to understand and develop the Artificial Intelligence systems with applying modern techniques.

Outcome 2

Development of skills

Graduates will be able to compete with other engineers for jobs and obtain the required seats in the completion of higher studies.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking, Graduates will be able to use critical-thinking and problem-solving skills to develop projects and publish scientific paper.

6- Job Opportunities for Graduates:

Graduates of the department work in a wide range of fields, including academia, technology, healthcare, finance, manufacturing, e-commerce, and security, both domestically and internationally. Examples include:

- Artificial Intelligence Engineer (AI Engineer)
- AI Research Scientist
- Head of AI Department
- AI Consultant
- AI Project Manager
- Data Security Analyst
- Software Developer / IT Project Manager

- Smart Systems Consultant
- AI Business Analyst
- Robotics Engineer
- Computer Vision Engineer
- AI Project Manager

These diverse career paths highlight the versatility and demand for expertise in artificial intelligence and related fields.

7- Academic staffs

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8- Credits, Grading and GPA

Credits

Artificial Intelligence engineering techniques is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hours' student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جد جدا	80 - 89	Above average with some errors
	C - Good	جد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS. CGPA of a 4-year B.Sc. degree:

CGPA = [(1st ᵐodule score x ECTS) + (2nd ᵐodule score x ECTS) + ……] / 240

9- Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	SWL	ECTS	Type	Prerequest
AIET1101	Introduction to Artificial Intelligence	64	86	150	6.00	C	None
AIET1102	Basic Mathematics	93	82	175	7.00	S	None
AIET1103	Fundamentals of Electrical Engineering	94	81	175	7.00	C	None
MTU1004	Computer Fundamentals	49	26	75	3.00	S	None
TECAI102	Engineering Drawing	63	62	125	5.00	S	None
MTU1002	English Language I	33	17	50	2.00	B	None
AIET1102	Basic Mathematics	93	82	175	7.00	S	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	SWL	ECTS	Type	Pre-request
AIET1201	C++ Programming	94	81	175	7.00	C	None
AIET1202	Advanced Mathematics	93	82	175	7.00	S	None
AIET1203	Digital Circuits	94	81	175	7.00	C	None
MTU1006	Democracy And Human Rights	33	17	50	2.00	B	None
TECAI101	Engineering Workshops	63	62	125	5.00	S	None
MTU1001	Arabic Language I	33	17	50	2.00	B	None